

RICE UNIVERSITY

Sponge, Table, Pads: Exchange Space

by

Chun Ou Yang

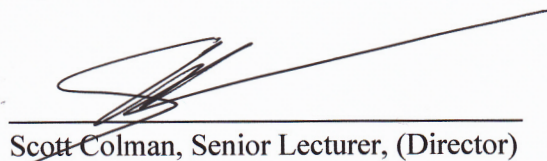
A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

Master of Architecture

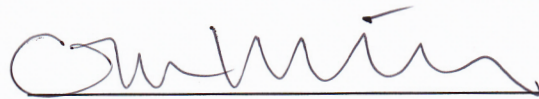
APPROVED, THESIS COMMITTEE:



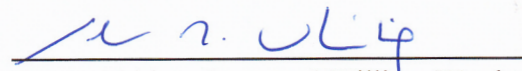
Ron Witte, Associate Professor of
Architecture, (Chair)



Scott Colman, Senior Lecturer, (Director)



Gordon Wittenberg, Professor of
Architecture



Sarah Whiting, Dean and William Ward
Watkin Professor of Architecture

HOUSTON, TEXAS

MAY 2012

ABSTRACT

Sponge, Table, Pads: Exchange Space

by

Chun Ou Yang

This thesis takes the typical one-to-one relationship between a tower and a lobby and asks what if a three-layer base that produces a higher density and a scale exceeding the physical boundary of a single office tower replaces the lobby. Combing retail, conference facilities and recreation the base at once consolidates the programmatic needs of office workers and thickens the singular exchange of lobby-office-lobby to one of recreation-lobby-retail-office-lobby.

Spanning the length of a ten-acre site in London, the base establishes a large horizontal floor plate and introduces big-box retail and an economy privileging lower prices onto a site surrounded by boutiques and mom-and-pop stores. Instead of planar adjacencies, retail and towers overlay in section. Vertical, horizontal and transverse circulations intersect, turn and unite, forming new programmatic possibilities and proliferating the cultural, economic and social life of a tower onto the city.

ACKNOWLEDGMENTS

This thesis is possible because of the following people:

Ron, for showing me what architecture can do and for his dedication, wit, intelligence and continuous guidance;

Sarah, Albert and **Scott**, for the insight, feedback and support;

Alex, Clayton, Jun, Michael, Gail and **Jessy** for stepping in at a critical moment;

Mom and **Dad**, for their love and encouragement.

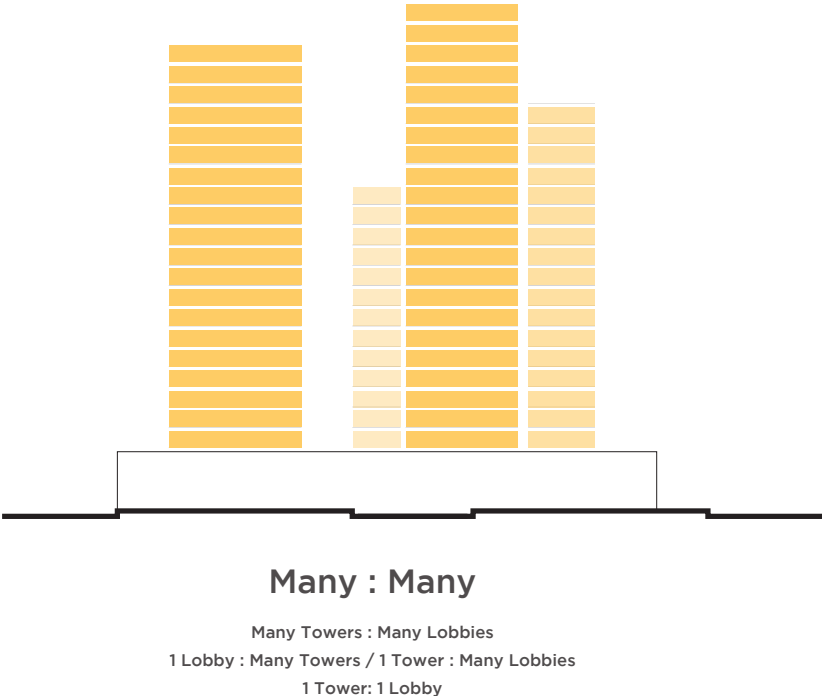
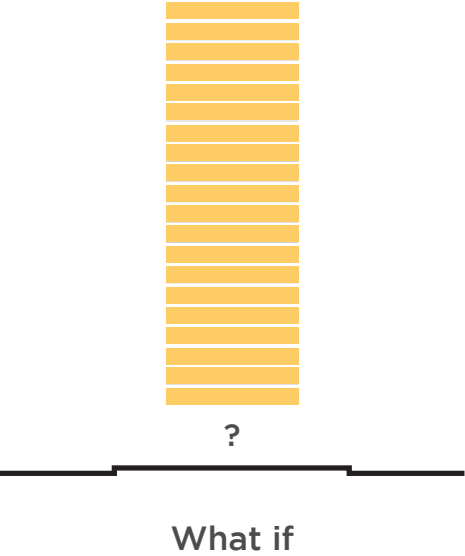
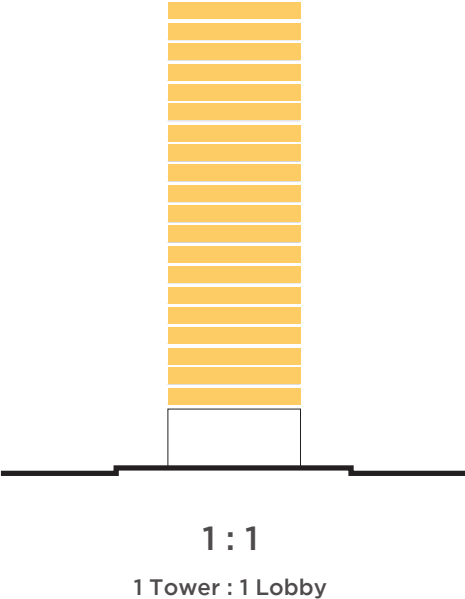
TABLE OF CONTENTS

| | |
|-----------------|----|
| Abstract | i |
| Acknowledgment | ii |
| Introduction | 1 |
| Three-part base | 7 |
| Exchange Space | 11 |
| Bibliography | 37 |

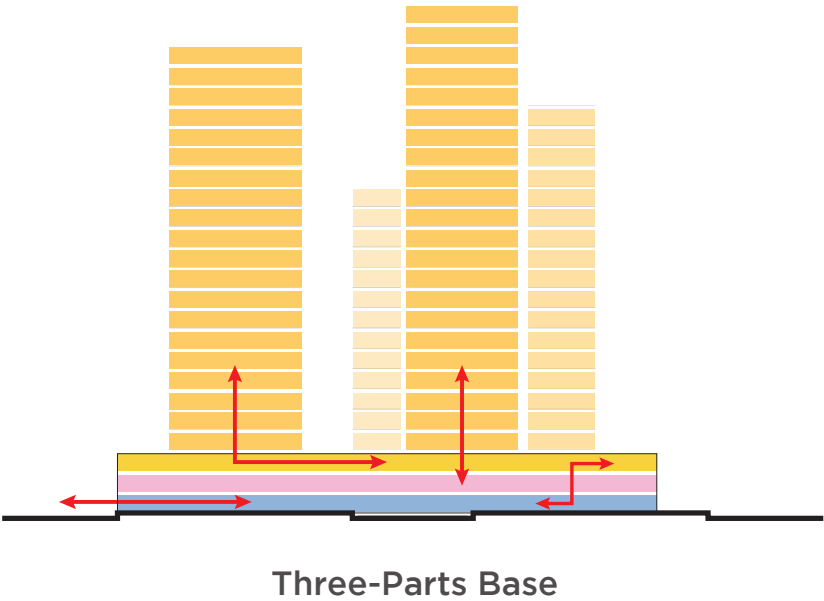
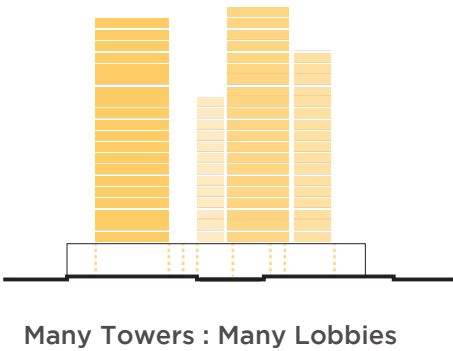
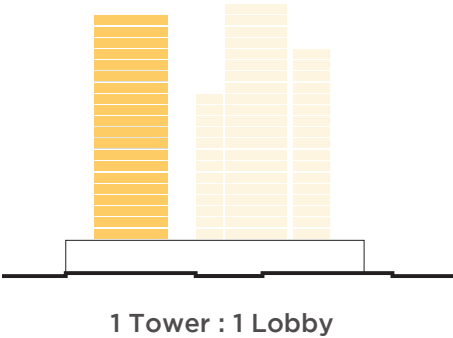
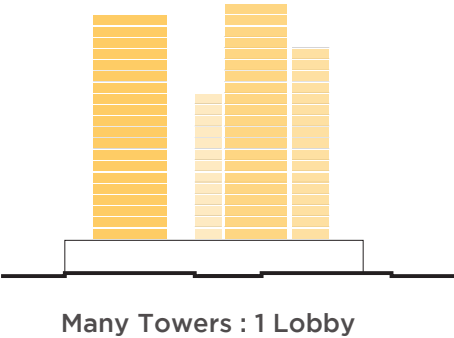
SPONGE, TABLE, PADS:
EXCHANGE SPACE

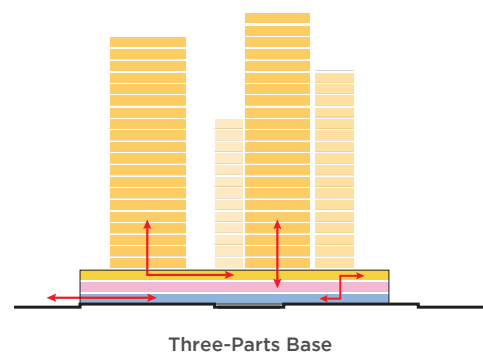


The typical relationship between a lobby and a tower is a one-to-one relationship. One lobby matches one and only one tower. What if the relationship becomes many-to-many? One tower now matches an expanded lobby; one lobby also serves multiple towers.

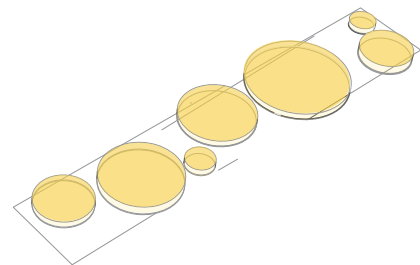


What if the lobby is made up of
a three-layer base?

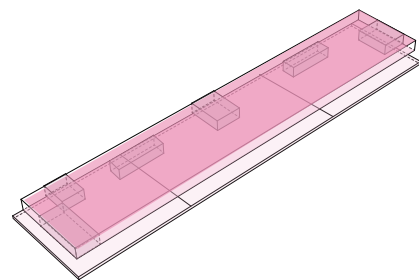




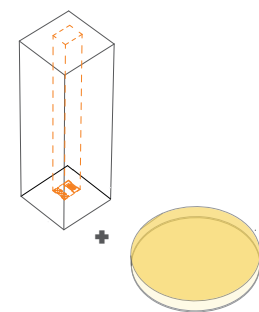
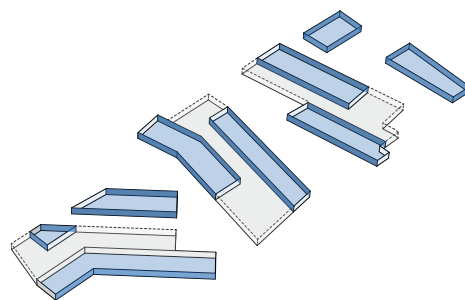
Layer 3 **Pads**



Layer 2 **Table**

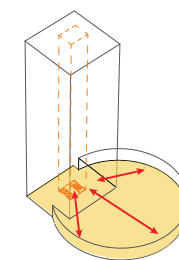


Layer 1 **Sponge**

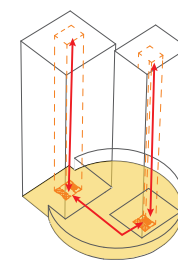


Tower and pad

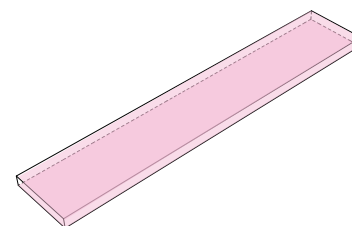
=



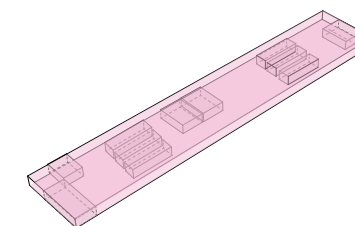
Large program exceeding the
foot print of a tower



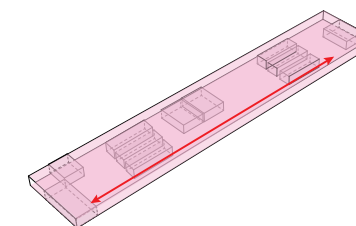
Connection to adjacent tower



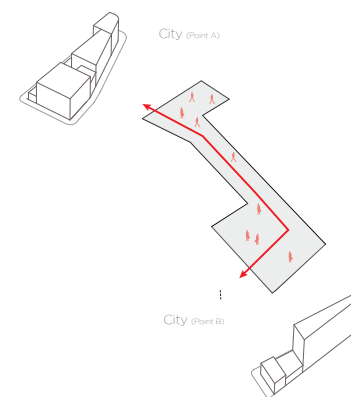
Big Box



Large program

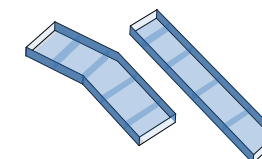


Horizontal main circulation



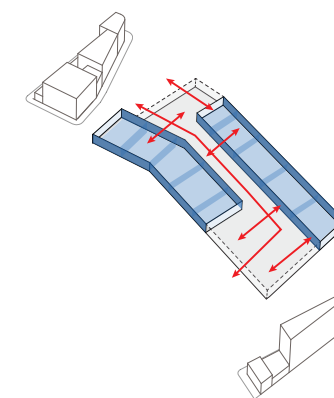
Circulation

+



Mom and Pop Retail

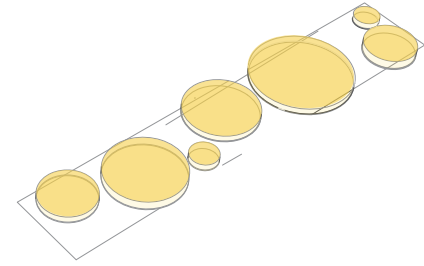
=



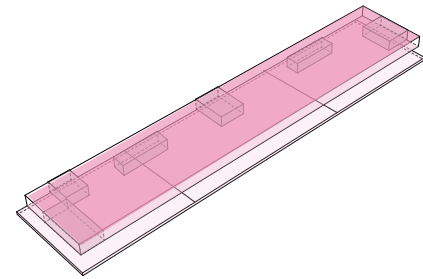
Overflow of program into city
Overflow of city into program

Each of the three layers engages a specific component - city, base and towers - and a specific direction. Through their intersection, the three-layer base enables new programmatic possibilities for each of the individual layers and a multiplying feedback loop stretching, collapsing and compounding the tower with the city.

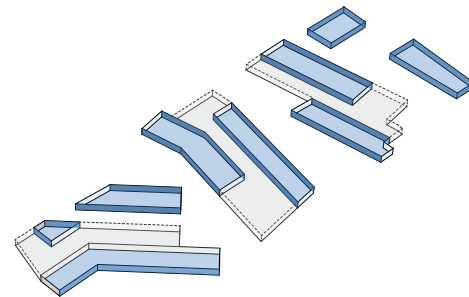
Pads



Table

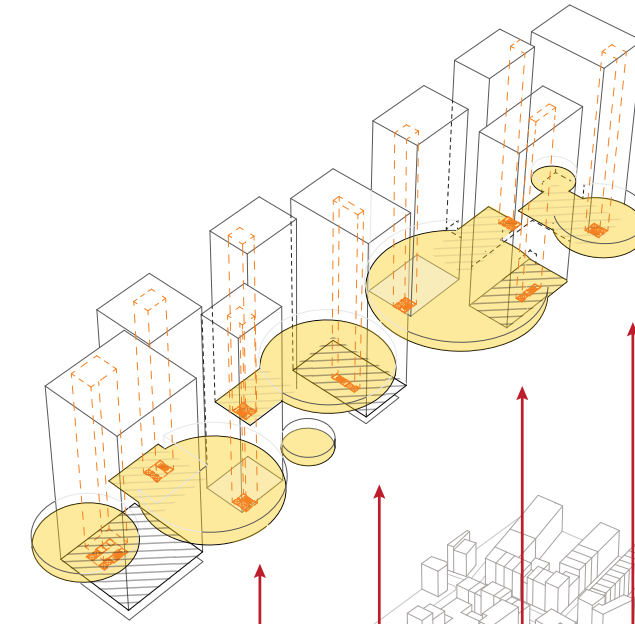


Sponge



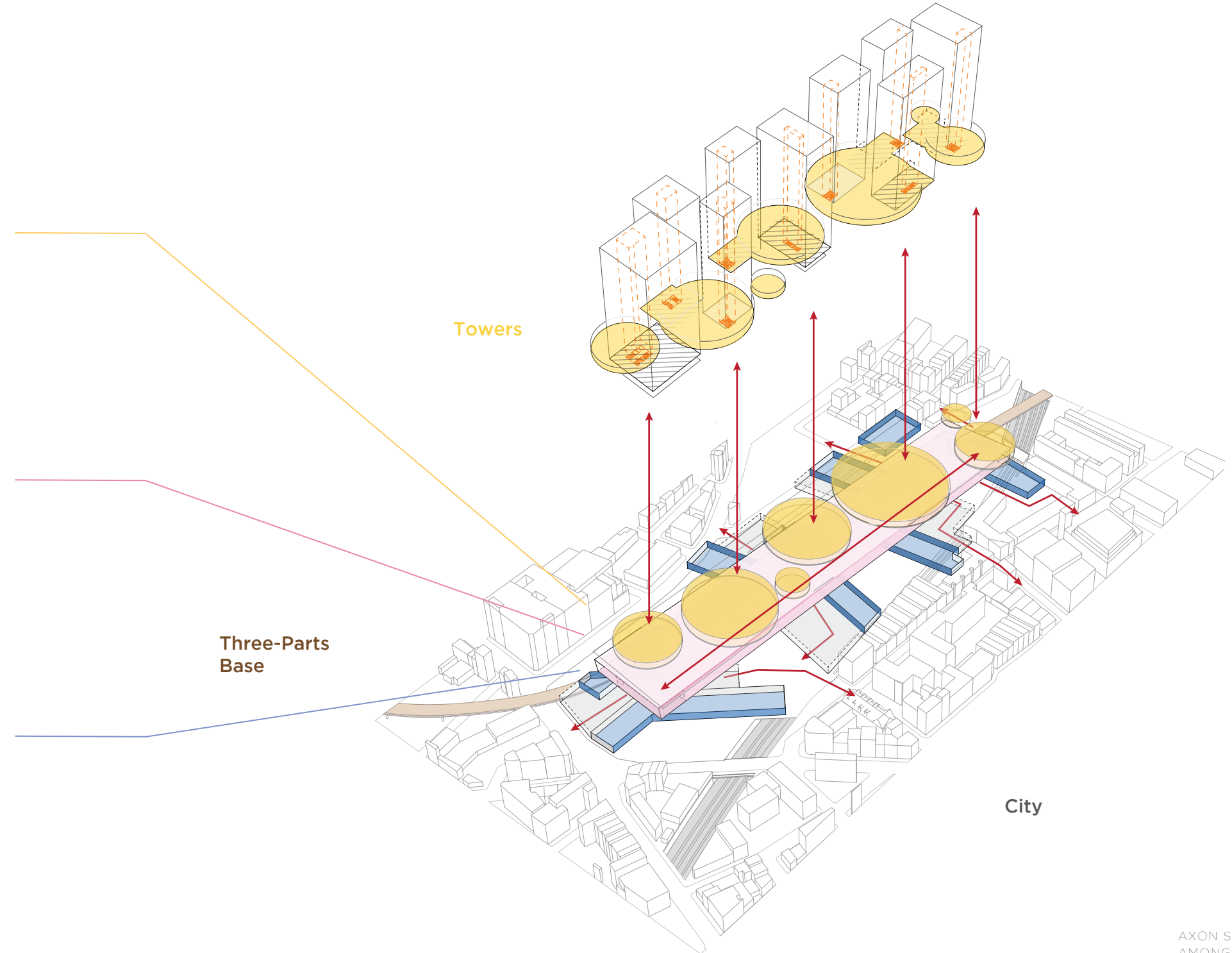
Vertical
Horizontal
Transverse

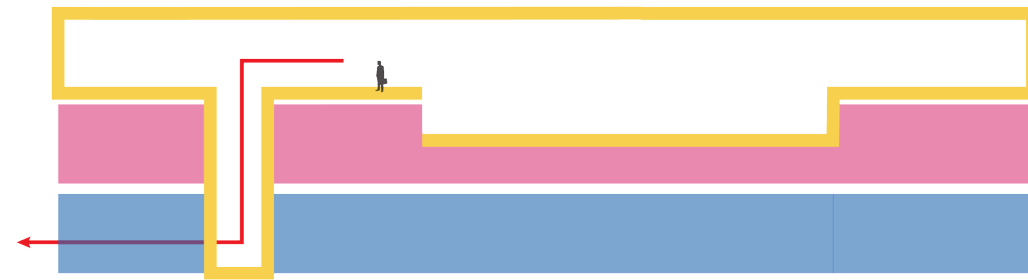
Towers



Three-Parts Base

City





Private users, such as office workers, exit from pads, cutting through Table and Sponge;

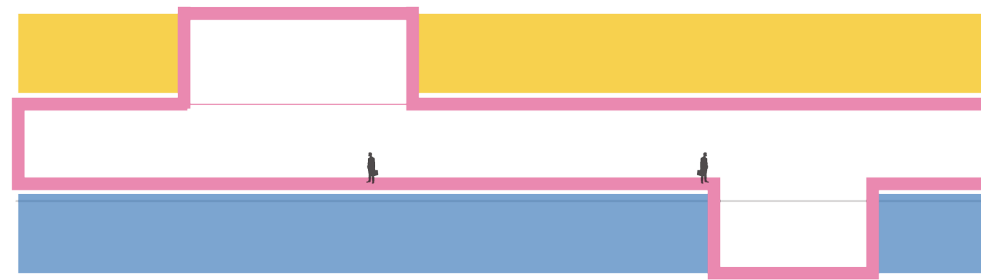
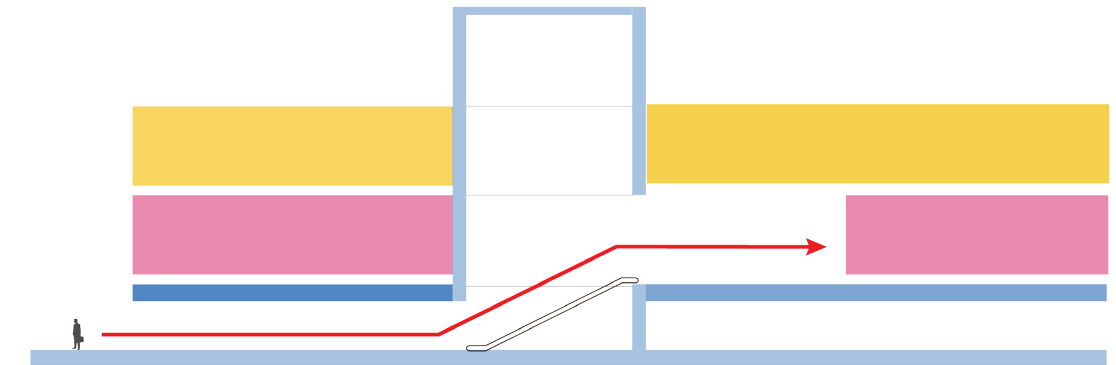
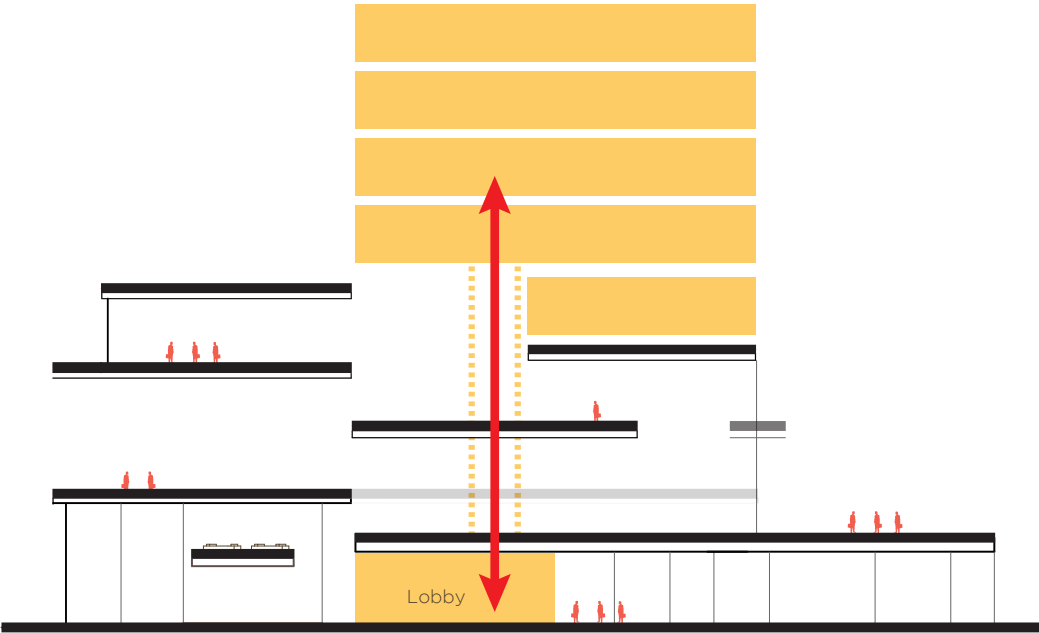


Table volumetrically extends into Pads and Sponge;



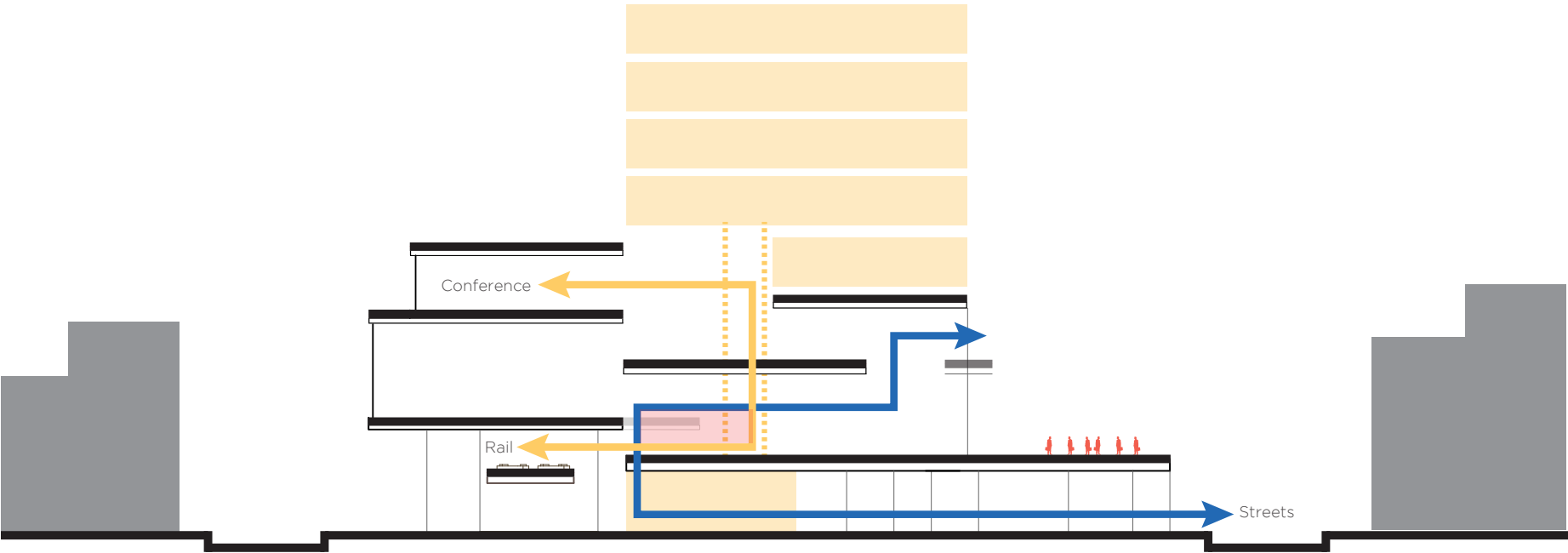
Public, such as commuters, shoppers, enter via Sponge, slicing through Table and Sponge.

Impact on tower



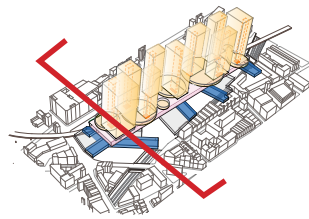
Lobby detaches from tower

Impact on city

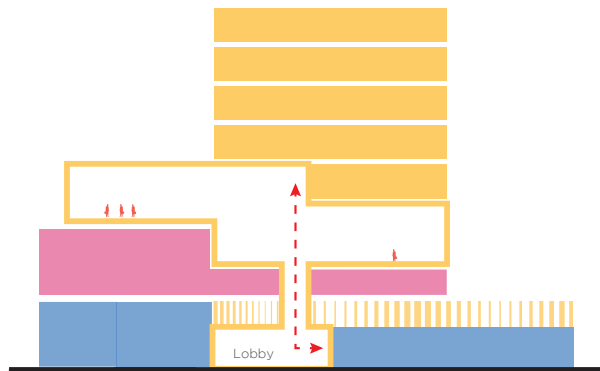


Interchange of multiple publics in section

The three-layer base inserts programs into a tower. It pushes a lobby (formal) from the offices it services while retail, infrastructure, and open space penetrate through and establish a series of informal points of entries to the towers. Users specific to each of the programs cross paths at the base. As retail takes advantage of the large floor plates and the offices in the towers benefit from views and natural light, the base is an organizational strategy transforming at once the relationship between the components of a tower and that between a tower and the city beyond.



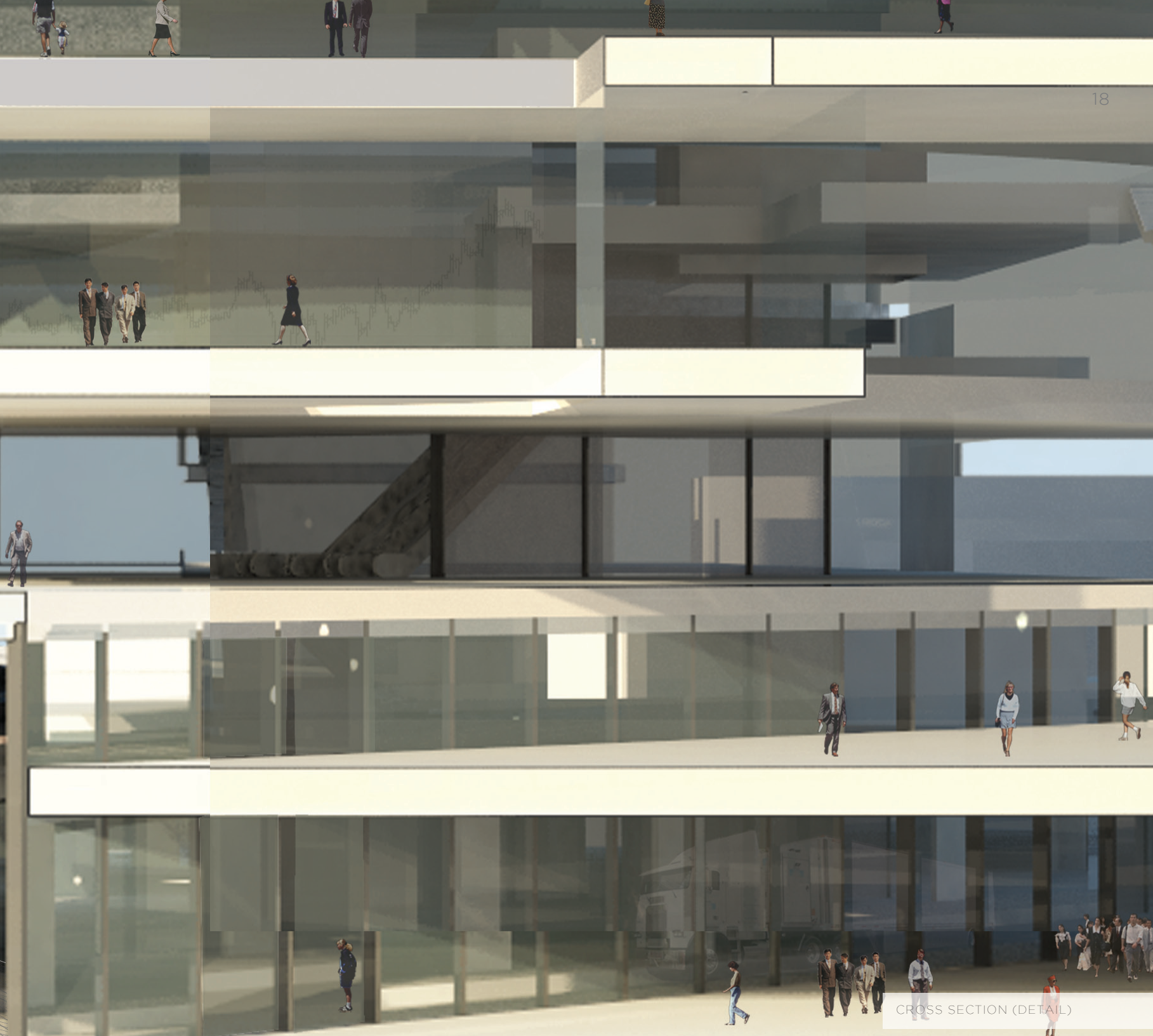
SECTION CUT



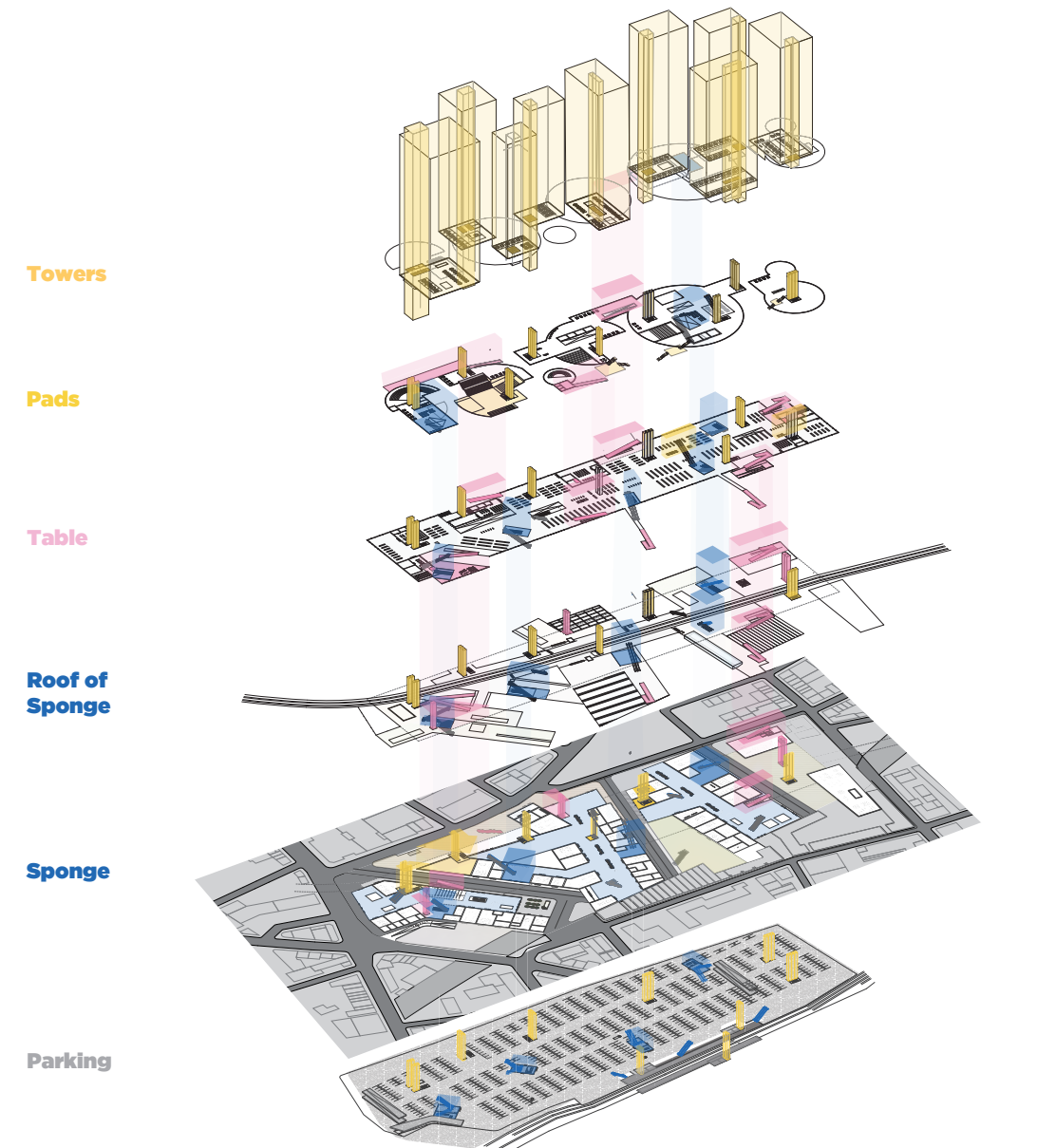
PADS



CROSS SECTION



The base and the aggregated towers above offer an alternative to the dominant model in London. Instead of monolithic towers sited adjacent to a series of low-rise buildings, components of a tower now nest above, into and below a base made up with programs typical of the low-rise buildings. By shifting from planar adjacency to sectional overlap, on one site higher density in both the number of towers and the number of low-rise buildings are now possible. This efficient land use also produces efficiency in construction as floor plates for the towers can be standardized while larger spans are concentrated at the base.



EXPLODED ISOMETRIC

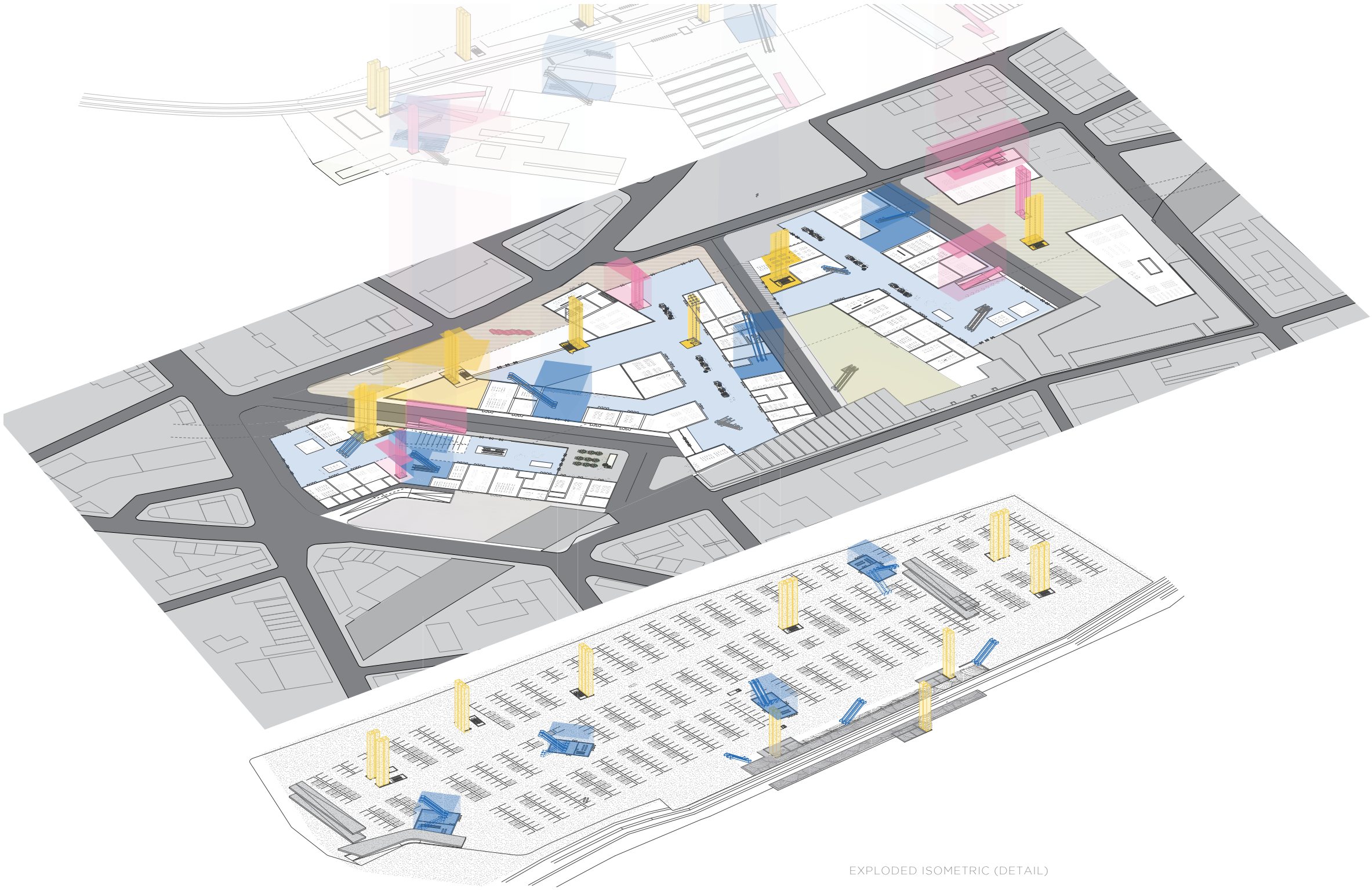


TOWERS ON SITE HAS GREATER DENSITY THAN TOWERS IN CONTEXT

**Roof of
Sponge**

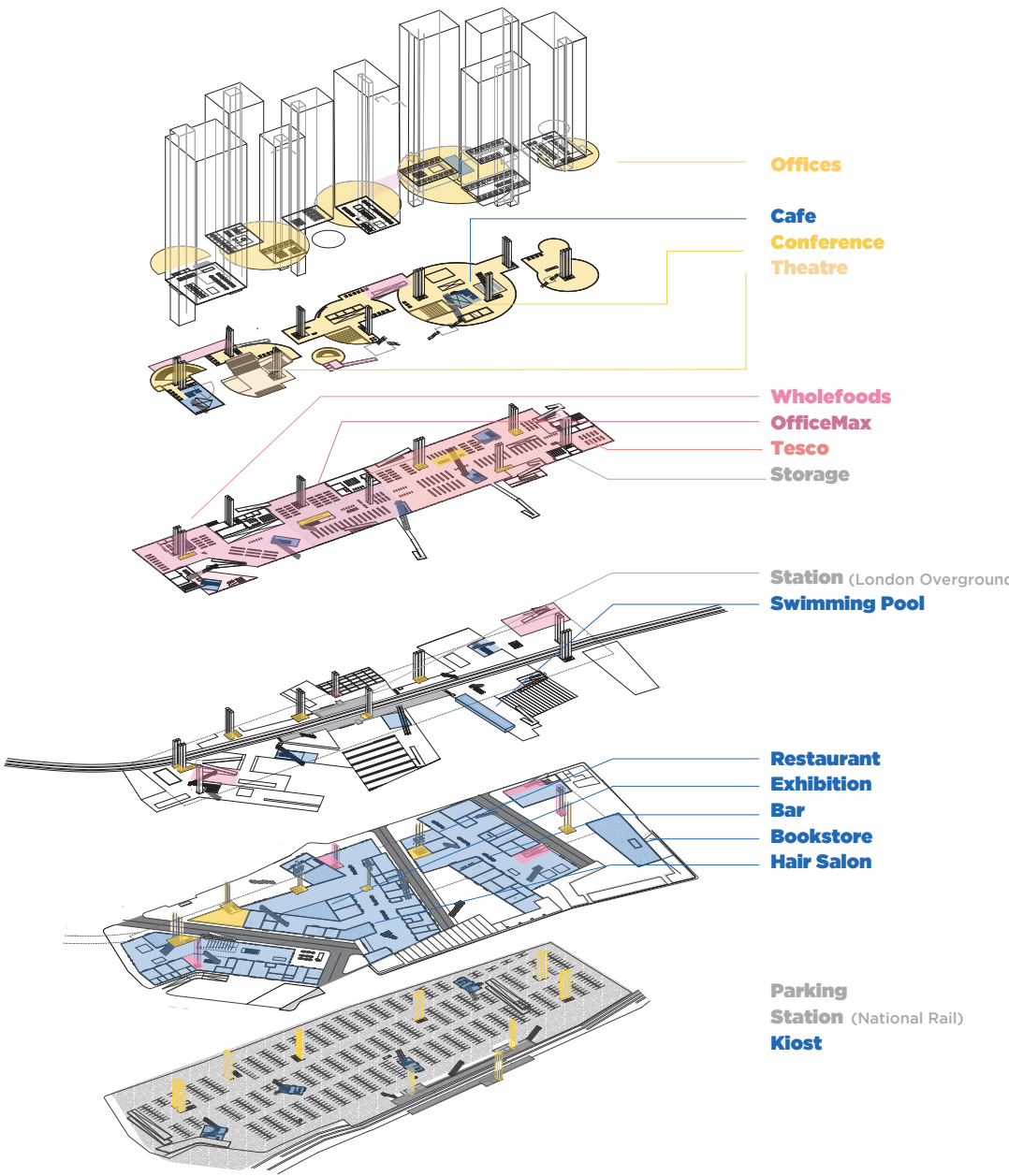
Sponge

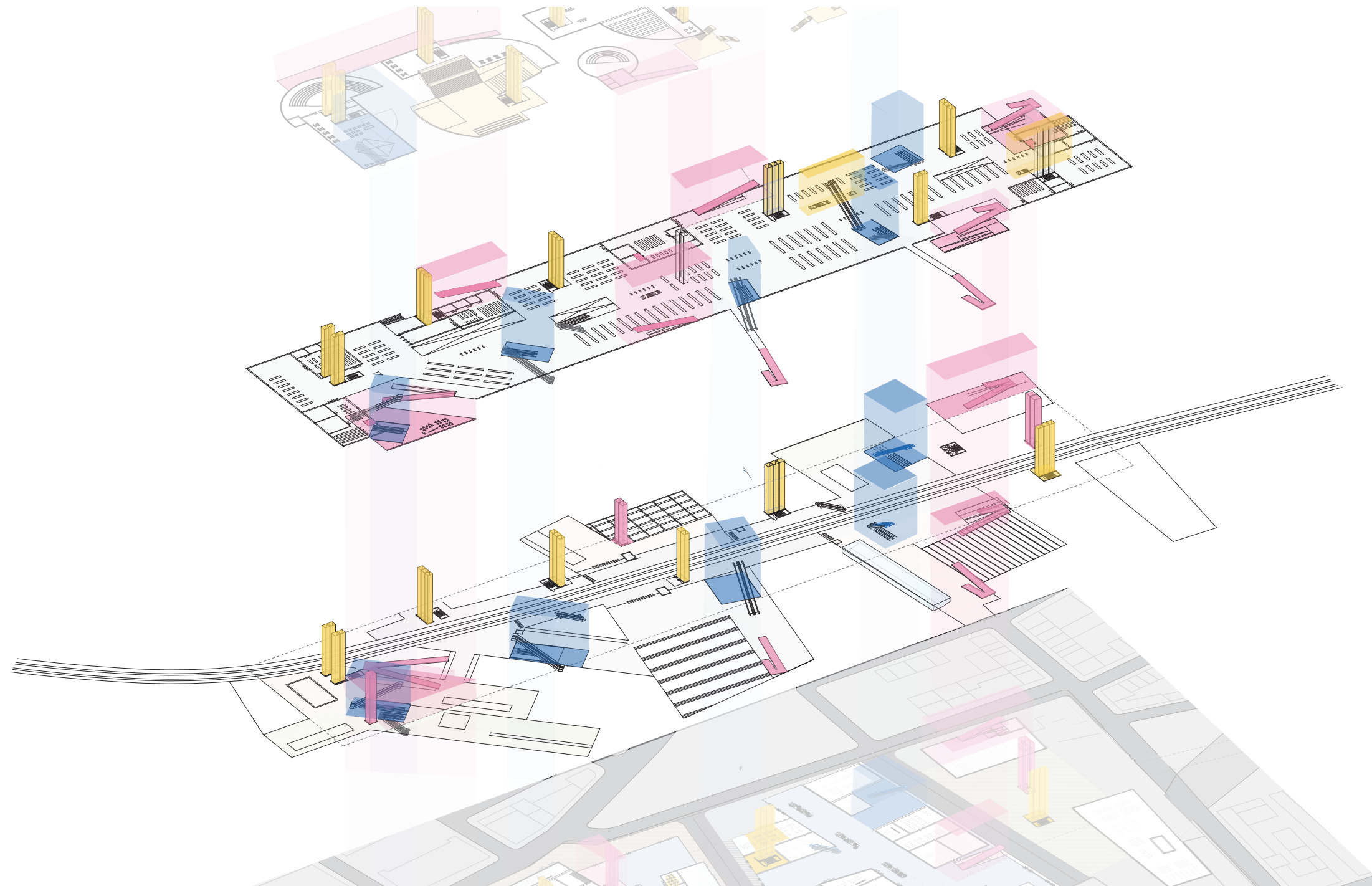
Parking



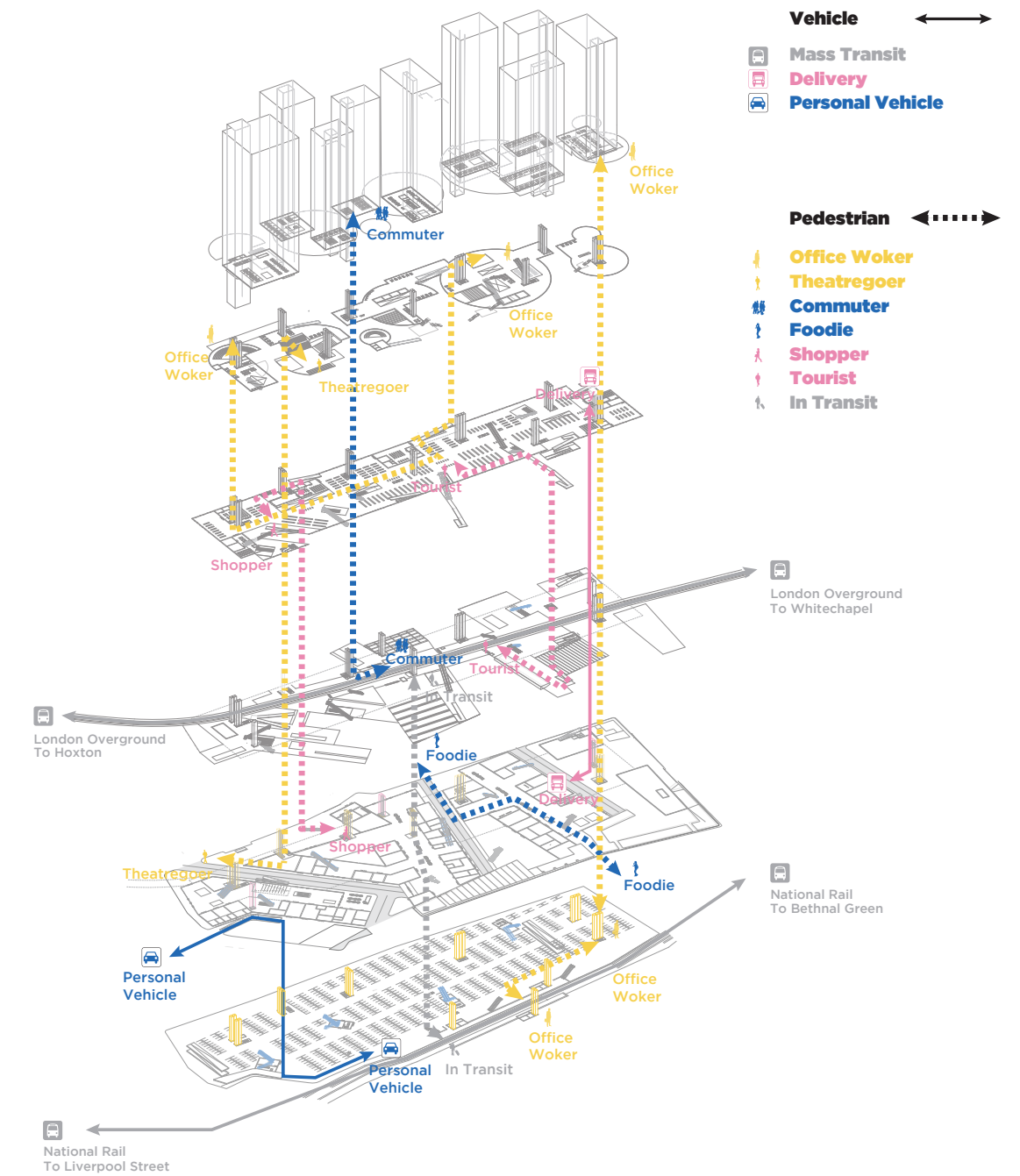
EXPLODED ISOMETRIC (DETAIL)

Program



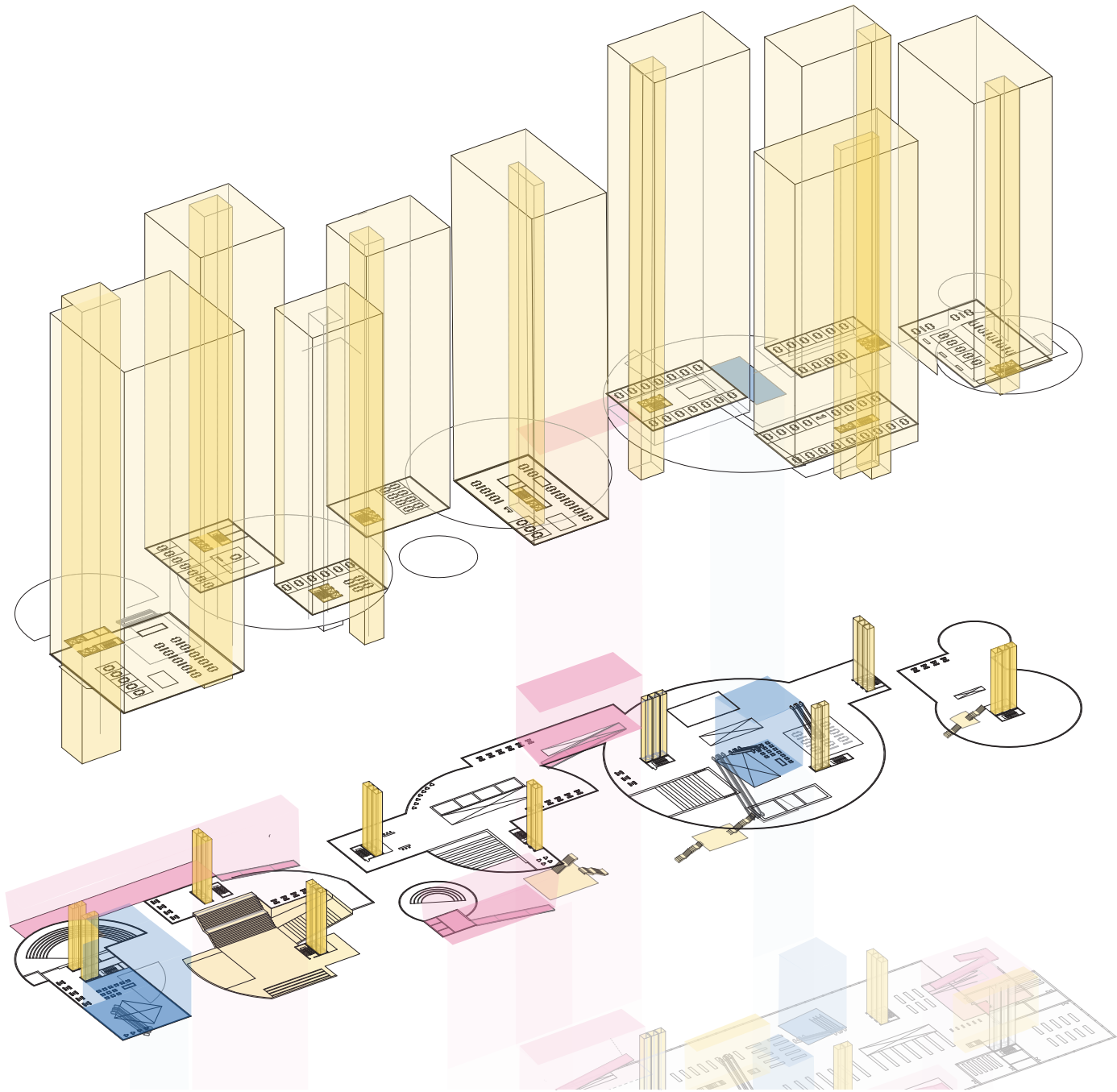


EXPLODED ISOMETRIC (DETAIL)



Towers

Pads



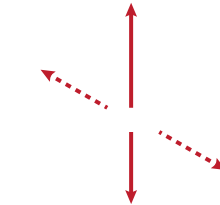
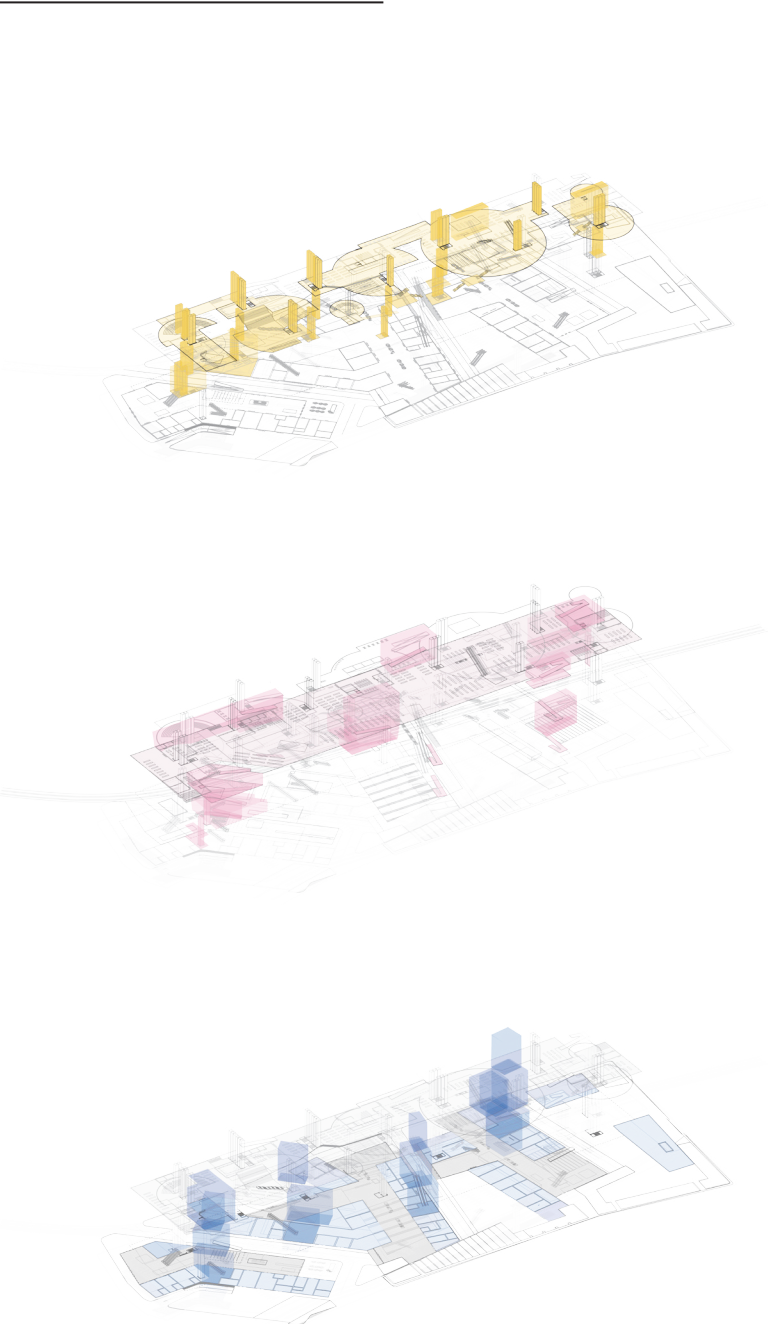
EXPLODED ISOMETRIC (DETAIL)

Combined Circulation

Pads

Table

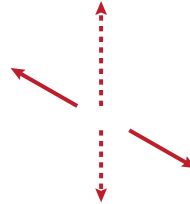
Sponge



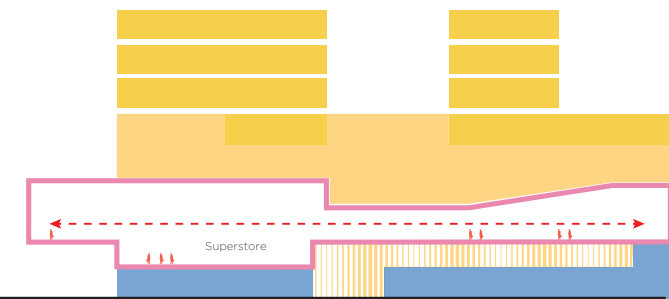
Vertical - Transverse



Horizontal



Transverse - Vertical

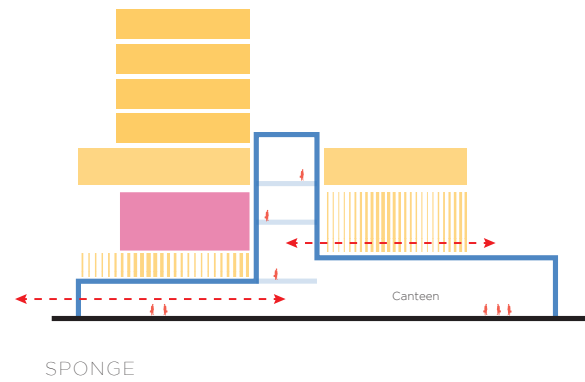


TABLE

Table introduces a large horizontal floor plate, enabling a new scale of economy privileging the middle and lower income group. Big box retail often sited outside the center of a city can now operate directly next to boutiques and mom-and-pop stores.

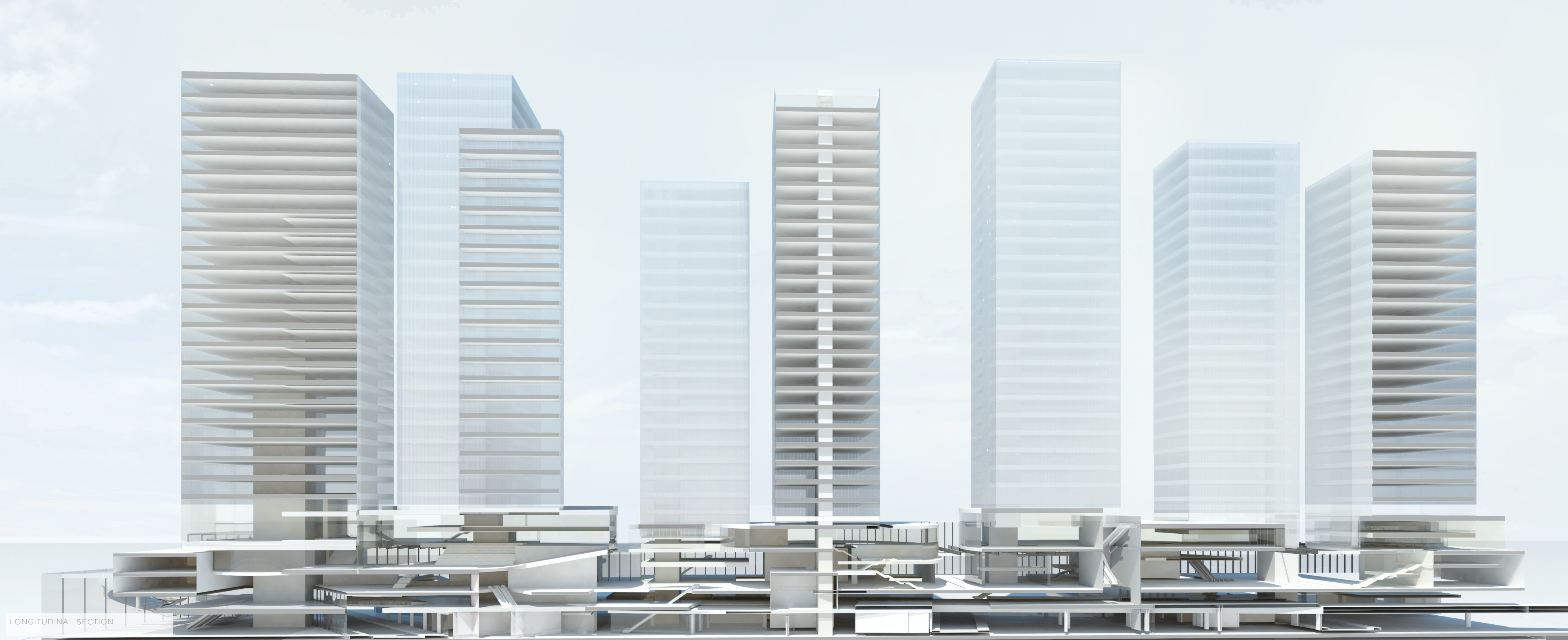


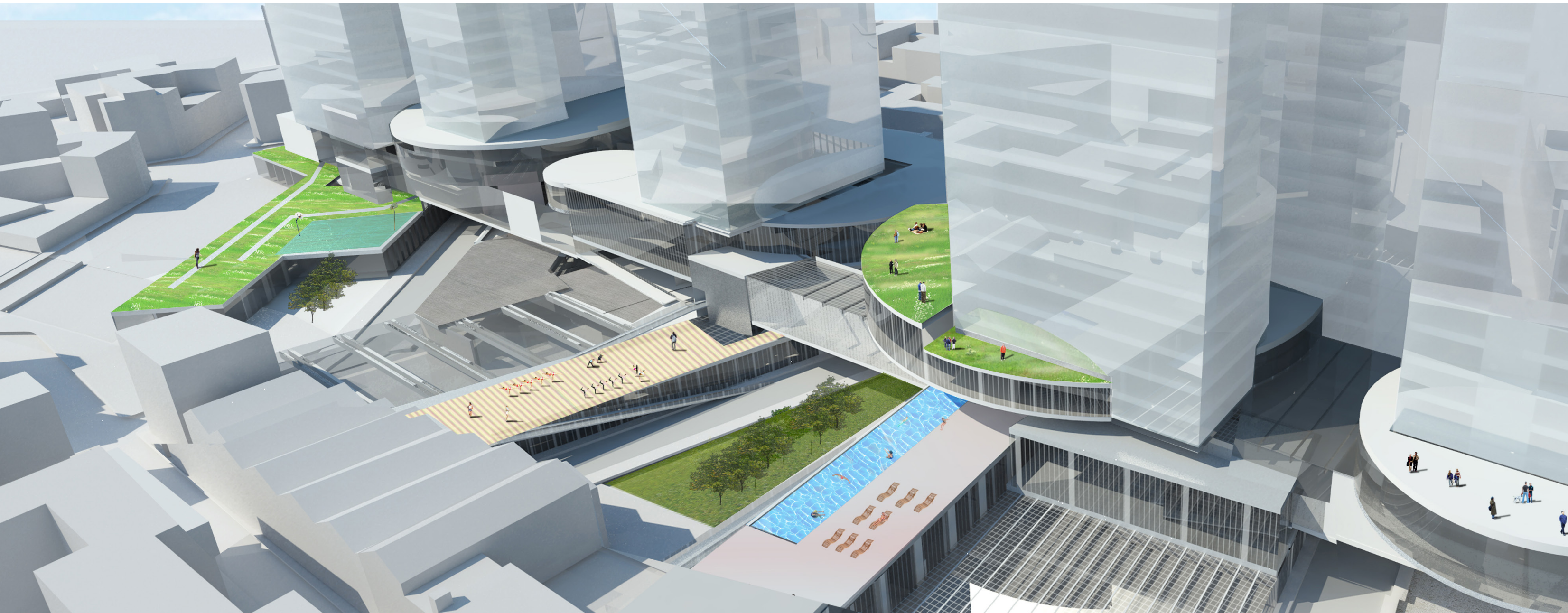
LONGITUDINAL SECTION (DETAIL)



Sponge punctures into the center of the three-layer base - extrapolating and directing pedestrian flow from the city onto the site while also establishing surfaces for recreational activities.







On the roof of sponge, park, swimming pool, basketball court and additional recreation programs establish a series of mid-level datums from which paths of users of the base, towers and the city beyond intersect, turn, truncate and expand - proliferating the cultural, economic and social life of a tower to multiple towers and the city beyond.



PROFILE OF AGGREGATED TOWERS

BIBLIOGRAPHY

Abalos, Inaki and Herreros, Juan, *Tower and Office, From Modernist Theory to Contemporary Practice* (Cambridge, MA: MIT Press, 2003).

Aureli, Pier Vittorio, “The Difficult Whole” in *Log* Vol 9, Winter/Spring 2007, p. 39-61.

Benjamin, Walter. *The Arcades Project* (Cambridge, MA: Harvard College, 1999).

Chung, Chuihua Judy., Jeffrey Inaba, Rem Koolhaas, Sze Tsung. Leong, and Tae-wook Cha, *Harvard Design School Guide to Shopping* (New York: Taschen, 2001).

Koolhaas, Rem, and Bruce Mau, *S M L XL: OMA*. (New York: Monacelli Press, 1993).

Koolhaas, Rem, Stefano Boeri, Sanford Kwinter, Nadia Tazi, and Hans Ulrich. Obrist, *Mutations* (Bordeaux: Arc En Rêve Centre D’architecture, 2001).

Lenne, Frédéric. Paris - *Les Halles: Concours 2004* ; [AJN - Jean Nouvel, MVRDV - Winy Maas, OMA - Rem Koolhaas, SEURA - David Mangin]. Paris: Le Moniteur, 2004.

Maas, Winy, Jacob van Rijs, and Richard Keok, *FARMAX: Excursions on*

Density, (Rotterdam: 010 Publishers, 1998).

Rossi, Aldo, *A Scientific Autobiography* (Cambridge, MA: MIT Press, 1993).

Rowe, Colin, and Fred Koetter. “Crisis of the Object: Predicament of Texture,” in *Collage City* (Cambridge, MA: MIT Press, 1978).

Smithsons, Alison and Peter, *The Charged Void: Architecture* (New York: The Monacelli Press, 2001).

Smithsons, Alison and Peter, *The Charged Void: Urbanism* (New York: The Monacelli Press, 2005).

Somol, R.E., “12 Reasons to Get Back in Shape.” in *Content*, edited by OMA and Rem Koolhaas (Koln: Taschen, 2004).

van Berkel, Ben and Bos, Caroline. “Typological Instruments: Connecting Architecture and Urbanism” in *Architectural Design* Vol 81, January/February 2011, p. 66-77.

Whiting, Sarah. “Bellyache” in *Log* Vol 5, p. 5-8.

Witte, Ron, “Solution” in *Sendai Mediatheque-Toyo Ito*, edited by Ron Witte (New York: Prestel, 2002), p.13-22.